

rating medical authorities, and to report their proceedings to all the said authorities.

IX. That there be two or more examinations on professional subjects, and that the fees of candidates be not less than thirty guineas to be paid in two or more payments.

X. That every matriculated student of an English university who shall have completed the curriculum of study required by his university, and shall have passed such an examination, or examinations, at his university as shall comprise the subjects of the primary examination, or examinations, conducted by the Board, be eligible for admission to the final examination; and that every candidate so admissible to examination be required to pay a fee of five guineas, but he shall not be thereby entitled to the license of the Royal College of Physicians of London, nor to the diploma of member of the Royal College of Surgeons of England, without the payment of an additional fee of not less than twenty-five guineas.

XI. That every candidate who shall have passed the final examination conducted by the Board shall, subject to the by-laws of each licensing body, be entitled to receive the license of the Royal College of Physician of London, and the diploma of member of the Royal College of Surgeons of England.

This is signed by George Burrows, President of the Royal College of Physicians, and George Busk, President of the Royal College of Surgeons.

Sir Roundell Palmer, Mr. Denman, and Mr. Bevis have given their opinion that this scheme can be legally carried into effect by means of by-laws to be adopted by the respective Colleges of Physicians and Surgeons. This opinion was presented at the meeting of the Joint Committee on the 3rd inst. The examiners in surgery will be chosen from among the examiners who have been appointed under the charters of the College of Surgeons, and the Court of Examiners will adopt the certificate of the new examining body.

Meetings are being held in Dublin with a view to the formation of a conjoint examining board for Ireland. So far, no insurmountable difficulty has arisen in the several matters which have come under the notice of the deputed representatives of the Universities and of the other licensing bodies, and it is hoped that the board, as proposed, will become an accomplished fact. A claim was put forward by the Universities that the first part of the professional examination conducted by the conjoint board should not be required of university students who had passed their examination on the same subjects; and that in their case the examination should be confined to the final one. To this, however, the other licensing bodies properly objected; but an offer has been made by the other corporations that the preliminary examination should be wholly conducted by examiners appointed by the Universities.

NOTES

THE celebrated ethnological collection of the late Dr. Gustavus Klemm, of Dresden, which had obtained a world-wide celebrity from its richness in illustrations of dress and ornaments, household utensils, furniture, warlike, fishing, and hunting implements, &c., extending from the earliest times down to the immediate present, has been purchased by subscription, and transferred to Leipsic, where it forms the nucleus of the new German Central Museum of Ethnology, and around which is to be grouped whatever additional material can be procured in illustration of the general plan. An earnest appeal is made by the officers and others interested in this enterprise to their countrymen and others in the United States for contributions. It will occupy the place in Germany of the great Archæological Museum of Copenhagen: of that of Mr. Blackmore at Salisbury, in England;

of the Museum of St. Germain, near Paris, under direction of M. Mortillet; and of the Smithsonian and Peabody Museums in the United States.

THE Exhibition of Neolithic Instruments by the Society of Antiquaries at Somerset House will be re-opened to-morrow, and will finally close on Thursday, January 18. For tickets apply at the Society's apartments.

ON Saturday last, at an early hour in the morning, the female hippopotamus in the Zoological Society's gardens gave birth to a young one—being the second occasion on which this interesting occurrence has taken place. As in the former case, it has been found necessary to close the building in which the female is placed entirely, not even the keepers entering into it except when absolutely necessary, in consequence of the extreme savageness and jealousy exhibited by the fond mother. Some days must therefore elapse before the "little stranger" can be prepared to undergo the ordeal of public exhibition.

ANOTHER interesting addition just made to the Zoological Society's collection is a young specimen of the King Penguin (*Apteryx pennanti*) from the Falkland Islands. For this remarkable bird, which is still in the down-plumage, the Society are indebted to the kind exertions of F. E. Cobb, Manager of the Falkland Islands Company, who has been for some time endeavouring to obtain living examples of this species for the Society. The King Penguin is placed in the great eastern aviary, along with a specimen of the Cape Penguin (*Spheniscus demersus*) which has been for some time under the Society's care.

WE have just received the fourth report of the Radcliffe Trustees from the Radcliffe Librarian, Dr. Henry W. Acland, including also a catalogue of the transactions of societies, periodicals, and memoirs, available for the use of professors and of students in the Library; a catalogue of books recommended to students in physical science by the museum professors; and the Regulations of the Library. The additions to the Library are made, as far as the annual grant of 500*l.* will allow, either on the judgment of the librarian as to the intrinsic value of a work, or on the advice of a professor, or upon the knowledge that students require it.

It is stated that the average yearly number of visitors at the South Kensington Museum during the last five years has been 905,084.

THE University Court of the University of Edinburgh, at a meeting held on Tuesday, Jan. 2, declined to give effect to the recommendation of the Senatus, that the regulations in reference to the medical education of women should be rescinded. The Court guarded itself against being understood to indicate any opinion as to the claim of women to proceed to graduation, or as to the powers of the University to confer on women degrees in the faculty of medicine.

THE Second Course of Cantor Lectures of the Society of Arts for the session will be delivered by the Rev. Arthur Rigg, M.A., on "Mechanism." The first lecture will be given on Monday evening, Feb. 5, at eight o'clock, and the remainder of the course will follow on the five succeeding Monday evenings.

AT the annual meeting of the Birkbeck Literary and Scientific Institution, Sir John Pakington, M.P., in the chair, it was stated that, during the past year, the following new subjects have been introduced into the curriculum of the Institution:—Acoustics, Light and Heat, Practical Chemistry, Mineralogy, Metallurgy, and the Theory of Music.

THE authorities of the American Museum of Natural History, at the Central Park in New York, have set apart Monday and Tuesday especially for the use of those persons who may desire

to examine the specimens in the Museum for the purpose of special study. Notifications of this arrangement have been distributed to the principal learned societies throughout the country, inviting them to attend on these days.

DE LA RUE'S indelible diaries for 1872 are as usual beautifully printed and bound, with ample room for memoranda. We miss the astronomical article, but still the letter-press being curtailed is an advantage, the book being less weighty for the pocket. The desk diary is a most useful appendage to the writing table, containing, besides the almanack, tables, &c., extra pages for memoranda and accounts.

THE eighth Annual Report is issued of the Belfast Naturalists' Field Club for 1870-71. The papers of which abstracts are printed in the Report are of varied interest, the subjects comprised including—"The Geographical Distribution of Cyclones," "The Latest Fluctuations of the Sea Level on our own Coasts," "Ocean Currents and their Effect on Climate," "Report of a Committee appointed to examine some Ancient Remains in the neighbourhood of Armoyle, county Antrim," and numerous others. A number of prizes are offered to be competed for during the session ending March 31, for the best herbarium, collections of fossils, recent Crustacea and Echinodermata, shells, insects, sponges, &c., and others.

PROF. HALFORD has received from Simla the thanks of the Government of India for his paper on "The Treatment of Snake-bite by the Injection of Liquor Ammoniz into the Veins." The Governor-General in Council has determined to have Dr. Halford's pamphlet reprinted for general distribution to medical officers in different parts of India. It appears to be placed beyond doubt that this treatment is by far the most efficacious yet discovered in cases of poisonous snake-bite.

CONDURANGO root, the reputed specific for cancer, is becoming a subject of speculation in Ecuador and the United States. In Ecuador it has reached 17½ a ton, but in New York it has been selling for fabulous prices, though its virtues are contested. The Government of Ecuador has imposed an export duty. The Condurango root is now reported to have been discovered by Mr. Simmons in the neighbourhood of Santa Marta in Colombia or New Granada, and a small shipment has been made to the United States. It is not stated whether it has been tried for cancer in that country.

THE Chilean Government has sent the war steamer *Chacabuco* to survey the islands of Guaiatecas.

THE U.S. Government has directed a survey of the Bay of Limou, the Atlantic terminus of the new Costa Rica Railway, where a city is being laid out with a pier.

ANTHRACITE coal has been discovered in the district of San Miguel, five miles from the capital of Costa Rica in Central America. There are several seams of about 40 miles wide, and the coal has been proved to be of good quality. A railway is in progress in the neighbourhood. It may be remembered that coal is also found in the State of Panama.

IT is noted as remarkable that a spring of fresh water has been discovered near Mollendo in Peru.

THE pearl oysters are said to have disappeared this season from the Madras coast, as well as from that of Ceylon.

M. BERTILLON lately read before the Academy of Medicine in Paris a paper on the relative influence of marriage and celibacy, based on statistical returns derived from France, Belgium, and Holland. In France, taking the ten years 1857-66, he found that, in 1,000 persons aged from 25 to 30, 4 deaths occurred in the married, 10·4 in the unmarried, and 22 in widowers; in females at the same age, the mortality among the married and unmarried was the same—9 per 1,000, while in widows it was 17. In persons

aged from 30 to 35, the mortality among men was, for the married, 11 per 1,000, for the unmarried, 5, and for widowers, 19 per 1,000; among women, for the married, 5, for the unmarried, 10, and for widows, 15 per 1,000. There appears to be a general agreement of these results of marriage in Belgium and Holland, as well as in France.

WE are so accustomed to associate tattooing almost entirely with the natives of New Zealand and the Indians of North America, that it comes to us almost as a new fact to learn from a correspondent of the *Field* what a high standard the art of tattooing has reached among the Japanese. There we find men who make it their business to tattoo others, and these "professors of tattooing" are artists of no mean power, "for no india-rubber or ink-eraser can possibly take out a false line once imprinted; and they most invariably in the 'printing in' improve upon the drawings previously made." The bettoes or Japanese grooms will frequently have depicted on their skins, not only perfectly-drawn pictures of birds, reptiles, beasts and fishes, but also representations of whole scenes, often from some old legend or history. A very common device is the red-headed crane, the sacred bird of Japan, depicted standing on the back of a tortoise, and this is emblematic of woman's beauty treading down man's strength. These designs are pricked in by needles, and two or three colours are used.

PROF. KENGOTT, of Zurich, states that a hail-storm lasting five minutes occurred at eleven o'clock in the morning of August 20, 1871, the stones from which were found to possess a salty taste. Some of them weighed twelve grains. They were found to consist essentially of true salt, such as occurs in Northern Africa on the surface of the plains, mainly in hexahedric crystals or their fragments, of a white colour, with partly sharp and partly rounded grains and edges. None of the crystals were entirely perfect, but appeared as if they had been roughly developed on some surface. They had probably been taken up and brought over the Mediterranean from some part of Africa, just as sand is occasionally transported thence to the European continent and the Canaries by means of hurricanes. A still more remarkable phenomenon has been recently recorded by Prof. Eversmann, of Kasan—namely, the occurrence of hailstones, each containing a small crystal of sulphuret of iron. These crystals were probably weathered from some rocks in large quantity, and were then taken up from the surface of the ground by a storm, and when carried into the hail-forming clouds served as a nucleus for the formation of hailstones.

A PRACTICAL extension of the metalliferous region of Chile to the south is announced in the discovery of rich silver deposits in the southern province of Nuble. The place is called Cuesta del Caracol, and is between the Rivers Lota and Nuble, about fifty miles from San Carlos towards the east. The standard on assay is estimated at 100lb. of silver to the ton. Operations are already prepared on a large scale. The Lota district has hitherto only been known for its large trade in coal and fire-bricks.

THE Indian Government has taken measures for a survey of the Tenasserim tin mines and their present state of production, for which purpose it has despatched Mr. Mark Fryar, mining engineer, to that province.

IN the native State of Kolapore in the Bombay Presidency sheep suffered from a strange form of animal plague. This consists of a swarm of unusually voracious leeches. Besides this the wolves were out, carrying off children, invalids, and the aged in the exposed villages.

A WHITE elephant having been discovered in our possessions in Tavoy, on the Malay Coast, the Buddhist sovereigns are extremely anxious to obtain such an important minister of religion.

The King of Burmah has made special application to be favoured with the holy beast.

AN earthquake took place at Valparaiso in the early part of November (date not given) at 10.5 P.M. The shock was smart, and apparently from E. to W. There was another slighter shock shortly after midnight.

ON Oct. 10 an earthquake was felt at Salvador, also in Central America, at 8.27 A.M. It was slight. Another was felt on the 12th, at 11.36 P.M., lasting nineteen seconds, with a strong shock. After the 12th were two slight shocks, it is to be supposed conforming with those of Nicaragua.

ON Sept. 25 an earthquake was felt at Carrizal Bajo, in North Chile, at 4.3 P.M., preceded by a loud noise.

THREE islands have lately been surveyed by the United States Government in the North Pacific Ocean. They are Ocean Island, in latitude 28° 25' N., longitude 178° 25' W. Midway Island, or Brooks Island, in latitude 28° 15' N., longitude 178° 20' W.; Pearl and Hermes Islands, latitude 27° 50' N., and longitude 175° 50' N. They are all three coral islands, and abound in turtle, and birds were found in great numbers. There is but little guano and not much vegetation.

IN connection with the bad weather in November in the Bay of Bengal, the telegraph lines were on the 10th affected by earth-lines on the east coast of India. At Madras these currents were first noticed at 6 A.M., they abated at 4 P.M., and were strongest in the lines forming a considerable angle with the magnetic meridian. They were also observed in the Madras cable. In Calcutta the currents were noticed at about 3 A.M. and ceased at 2 P.M.

ANCIENT ROCK INSCRIPTIONS IN OHIO *

SEVERAL diagrams were presented to the section representing rock sculptures in Ohio, that are presumed to be ancient and to have some significance. The largest is a tracing made by Dr. J. H. Salisbury, of Cleveland, with the assistance of Mrs. Salisbury, from a mural face of conglomerate, near the famous "Black Hand" in Licking County, Ohio. Once there was a space of ten or twelve feet in height, by fifty or sixty feet in length, covered by these inscriptions. Most of them have been obliterated by the recent white settlers.

In 1861, Dr. Salisbury took copies from a space about eight by fifteen feet, by laying a piece of coarse muslin over them, and tracing such as remain uninjured, life size, on the cloth. In this space there are found to be twenty-three characters, most of which are the arrow-head or bird-track character. These are all cut on the edge of the strata, presenting a face nearly vertical, but a little shelving outward, so as to be sheltered from the weather.

Another copy of the remnants of similar inscriptions was taken by Colonel Whittlesey and Mr. J. B. Comstock, in 1869, from the "Turkey Foot Rock," at the rapids of the Maumee, near Perrysburg. These are on a block of limestone, and in the course of the twenty-five past years have been nearly destroyed by the hand of man. What is left was taken by a tracing of the size of nature.

On the surface of a quarry of grindstone grit at Independence, Cuyahoga County, Ohio, a large inscribed surface was uncovered in 1854. Mr. B. Wood, Deacon Bicknell, and other citizens of Independence, secured a block about six feet by four, and built it into the north wall of a stone church they were then building. Colonel Whittlesey presented a reduced sketch, one-fourth size of nature, taken by Dr. Salisbury and Dr. J. M. Lewis, in 1869, which was made perfect by the assistance of a photographer. Some of the figures sculptured on this slab are cut an inch to an inch-and-a-half in the rock, and they were covered by soil a foot to eighteen inches in thickness, on which large trees were growing. Like all of the others, they were made by a sharp-pointed tool like a pick, but as yet no such tool has been found among the relics of the mound-builders or of the Indians. The figures

are very curious. Among them is something like a trident, or fish-spear, a serpent, a human hand, and a number of track-like figures, which the people call buffalo-tracks, but which Dr. Salisbury regards as a closer representation of a human foot covered by a shoe-pack or moccasin. Another figure somewhat resembles the section of a bell with its clapper.

Near the west line of Belmont County, Ohio, Mr. James W. Ward, then of Cincinnati, now of New York, in 1859 took a sketch of two large isolated sandstone rocks, on which are groups of figures similar to those already noticed. Here are the bird-track characters, the serpent, the moccasin or buffalo-tracks, and some anomalous figures. These are plainly cut, with a pick, into the surface of the rock, which, like the Independence stone, is substantially imperishable. Here we have also the representation of the human foot, and the foot of a bear. Another figure, which appears to be the foot of some animal with four clumpy toes, Prof. Cope thinks may be the foretrack of a Menopome. One peculiarity of these sculptured human feet is a monstrously enlarged great-toe joint, even greater than is produced by the modern process of shoe-pinching. This has been observed in other ancient carvings of the human foot upon the rocks near St. Louis, Missouri. These feet range in size from seven to fifteen inches in length. Of all these representations, the bear's foot is closest to nature. The bird-track, so called, presents six varieties, some of which are anatomically correct. The human hand is more perfect than the foot.

Dr. Salisbury finds, on comparison of these symbolical figures with the Oriental sign-writing, or hieroglyphical alphabets, that there are many characters in common. Some 800 years before Christ, the Chinese had a bird-track character in their syllable alphabet. The serpent is a symbol so common among the early nations, and has a significance so various, that very little use can be made of it in the comparison.

These inscriptions differ materially from those made by the modern red man. He is unable to read that class of them which appears to be ancient.

Lieut. Whipple has mentioned in the "Government Report of the Pacific Railroad Surveys," an instance of the bird-track character inscribed upon the rocks of Arizona. Prof. Kerr, of North Carolina, states that he has noticed similar characters cut in the rocks of one of the passes of the Black Mountains, at the head of the Tennessee river.

These facts indicate wide-spread universality in the use of this style of inscription, and they indicate something higher than the present symbolical or picture writing of the North American Indians.

SCIENTIFIC SERIALS

Monthly Microscopical Journal, January.—"The markings on the Battledore scales of some of the Lepidoptera." By John Anthony, M.D., &c. In this paper the author contributes the result of his observations on the plumules of *Polyommatus Alexia*, from which he is led to the conclusion that the markings on the ribs of the scales are elevations, very much resembling in shape the vegetable glands on the petal of *Anagallis*, that is, the elevations have a base, a column, and a rounded head, or capital; the form being very much like that of an ordinary collar-stud. The methods employed during observation are detailed in the paper, which is illustrated by two plates.—"The Nerves of Capillary Vessels and their probable action in health and disease" By Dr. Lionel S. Beale, F.R.S. This paper is divided into two parts, the anatomical investigation, and probable mode of action. The first part, containing the results of anatomical investigation alone, is published in the current number of the journal. The sections of this paper are, "Structure of Capillaries," "Nuclei or Masses of Bioplasm of Capillaries," "Nerve Fibres," "Arrangement of the Nerve Fibres distributed to the Capillaries," "Central Origin and Peripheral Connections of Nerve Fibres distributed to the Capillaries," and the "Method of Demonstration." Such an important contribution to microscopic anatomy could not be abstracted within the limits of this notice with justice to the author and his subject. We therefore commend it to the notice of all interested therein, with the assurance that they will find much matter for reflection.—On a New Micrometric Goniometer Eye-piece for the Microscope. By J. P. Southworth. The eye-piece micrometer here described is obtained by photographic reduction from heavy India-ink lines drawn on a white Bristol board. In the micrometer the lines are $\frac{3}{800}$ of an inch apart, and jet black, whilst the spaces between them are trans-

* Paper read before the American Association for the Advancement of Science, Section of Archaeology, by C. Whittlesey. Reprinted from the *American Naturalist*.